

ABSTRACT

The present invention is directed to an electrostatic discharge (ESD) device with an improved ESD robustness for protecting output buffers in I/O cell libraries. The ESD device according to the present invention uses a novel I/O cell layout structure for implementing a turn-on restrained method that reduces the turn-on speed of an ESD guarded MOS transistor by adding a pick-up diffusion region and/or varying channel lengths in the layout structure.

TECHNICAL FIELD